Title	**Perform butt fusion jointing on polyethylene pipe for a network**		
Level	**4**	**Credits**	**6**

Purpose	This unit standard is for people working in the infrastructure pipelaying industries. People credited with this unit standard are able to: locate and identify procedures, documentation, and equipment for polyethylene pipe butt fusion; and prepare for and perform butt fusion jointing.

Classification	Plastics Processing Technology > Plastics Fabrication

Available grade	Achieved

Entry information	
Recommended skills and knowledge	Unit 25610, *Demonstrate knowledge of equipment and operations for jointing polyethylene pipe for a network*.

Explanatory notes

1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable manufacturer's specifications, company and legislative requirements.

2 Legislation, regulations and/or Industry Standards relevant to this unit standard includes but is not limited to the current version of including updated amendments to, and replacements of - Health and Safety at Work Act 2015, Resource Management Act 1991, Australian and New Zealand Standards (AS/NZS), Plastics Industry Pipe Association of Australia (PIPA) guidelines.

3 Definitions
Company requirements refer to instructions to staff on policy and procedures which are documented in memo or manual format and are available in the workplace. These requirements include but are not limited to – company specifications and procedures, work instructions, manufacturer specifications, product quality specifications and legislative requirements.
Manual butt welding machines means those where the welding parameters, carriage operation, and heating/facing plates are activated and controlled by the operator. They may/may not have passive data logging, or printing interfaces.
Semi-automatic (automatic) butt welding machines means those where the welding parameter, and carriage operations are controlled by a CNC unit within the machine. The heater/facing plate entry/removal may be controlled by the operator. Individual

weld records of parameters, and carriage operations attained may be stored within the CNC unit and subsequently downloaded, or printed.

4 This unit standard is intended for people fusion welding plastic piping to transport either gas or water as described in AS/NZS 4130:2009.

5 The unit standard is intended for, but is not limited to, workplace assessment.

Outcomes and evidence requirements

Outcome 1

Locate and identify procedures, documentation, and equipment for polyethylene pipe butt fusion.

Evidence requirements

1.1 Company procedures for polyethylene pipe butt fusion are read and interpreted in relation to specified job requirements.

1.2 Job instructions are confirmed.

Range instructions include – site location, utility plans and/or mark-outs, consents, easements.

1.3 Potential environmental and safety risks are identified.

1.4 Manually operated butt welding machine is identified, and the main components are described.

Range components may include – machine frame, pipe and fittings clamping and alignment equipment, hydraulic power system including pressure, gauge, end facing attachment, heating plate and controls, timing equipment.

1.5 Semi-automatic and fully automatic butt welding machines are identified, and their main components and features are described.

Range components and features may include – automatic end facing, automatic weld cycle, automatic pipe feeding and clamping, automatic data logging.

1.6 The advantages and disadvantages of semi-automatic and fully automatic butt welding machines are explained.

Range may include – production output, weld strength, weld consistency.

1.7 Types and function of polyethylene pipe butt fusion equipment, components, and materials are identified.

Range pipe, cutters, power source, residual current device, rollers.

1.8 Potential risks of incorrect application and operation of equipment, and the steps to avoid them are described.

1.9 Resource requirements are identified and sourced.

Range plant, tools, materials, documentation, system components, personnel, communication equipment.

Outcome 2

Prepare for butt fusion jointing.

Evidence requirements

2.1 Safety and environmental risks are either isolated, removed, or minimised.

Range actions may include but are not limited to – signage, barriers, personal protective equipment, safe access and egress, temporary traffic control, environmental protection.

2.2 Component parts are prepared for butt fusion jointing.

Range leads, clamps, power source, residual current device.

2.3 Pipe and fittings are quality checked.

2.4 Pipe is prepared and positioned for butt fusion jointing.

Range cut to length, cut square, dry, free of contaminants, cleaning agent, covered, rollers, pipe movement.

2.5 Fusion unit is set up and parameters are calculated.

Range fusion time, voltage level, soak time, temperature, drag pressure, verification of settings.

Outcome 3

Perform butt fusion jointing.

Evidence requirements

3.1 Joints are butt fused.

3.2 The cooling period is identified and applied before handling and pressurising joint.

3.3 A check is carried out to ensure the integrity of the pipe joint.

Range check may include but is not limited to – visual assessment, on site pressure check, physical inspection.

Planned review date	31 December 2021

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	19 June 1997	31 December 2018
Revision	2	3 August 2000	31 December 2018
Review	3	22 October 2002	31 December 2018
Rollover and Revision	4	20 November 2006	31 December 2018
Review	5	20 November 2009	31 December 2018
Review	6	20 October 2016	N/A

Consent and Moderation Requirements (CMR) reference	0014

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Please note
Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMRs). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact MITO New Zealand Incorporated info@mito.org.nz if you wish to suggest changes to the content of this unit standard.